25X1

SHC65-9217-345
COPY 5 OF 15

Proposal for Focus Cam Retrofit for the Gamma I Rectifier to Accommodate Delta 6000 Series Photography

I. Introduction

25X1 [redacted] proposes a retrofit program in order to provide the Gamma I rectifier with a capability to handle both KH-4 and Delta 6000 series material.

Upon delivery and initial operational utilization of the first Gamma I rectifiers, it appeared desirable to be able to handle 6000 series panoramic material with the same resolution and geometric fidelity as is specified for the rectification of KH-4 photography. While the same resolution can be achieved during rectification of 6000 series material, the difference between the earth curvature set into the easel to achieve sharp focus and the easel curvature which is correct for the nominal aircraft altitude results in a displacement of image detail, i.e. a positional error in the rectified image. The magnitudes involved are shown in Figure 1. The proposed retrofit cam would correct this deficiency.

To accomplish the desired objectives, it will be necessary to:

a. Modify the easel adjustment range to accommodate the shift towards a greater radius.

b. Calibrate cam surfaces to allow sharp focus at the new easel positions.

c. Modify the existing three-dimensional cam to accept the new cam.

d. Calculate and fabricate an additional slide rule to accommodate the desired operational range.

II. Easel Modification

The change in easel curvature towards a plane of infinite radius will necessitate the replacement of the dial indicators at the extreme ends of the easel. The existing indicator covers a range of 1.000 inch maximum displacement and it will be necessary to replace this indicator with one that will provide a greater range. This replacement will thereby dictate the replacement of the indicator mount due to the different physical arrangement of the indicator. Replacement of the yoke and lead screw and the tension springs will also be accomplished.

III. Focus Cam

The calibration phase for the focus cam must occur after the easel modification has been accomplished. During this phase, the equipment will be set to the proper conditions and static photographic tests will enable the plotting of a curve that will define the focus cam profile. The theoretical data which have been computed, combined with past experience on the focus cam, lead us to believe that the desired range can be satisfied by the fabrication of two cam profiles.

We intend to modify the existing three dimensional cam to accept the two new profiles.

IV. Slide Rule

The existing slide rule does not provide data for the contemplated lower range of altitude. This necessitates the calculation and fabrication of a new slide rule.

V. Schedule

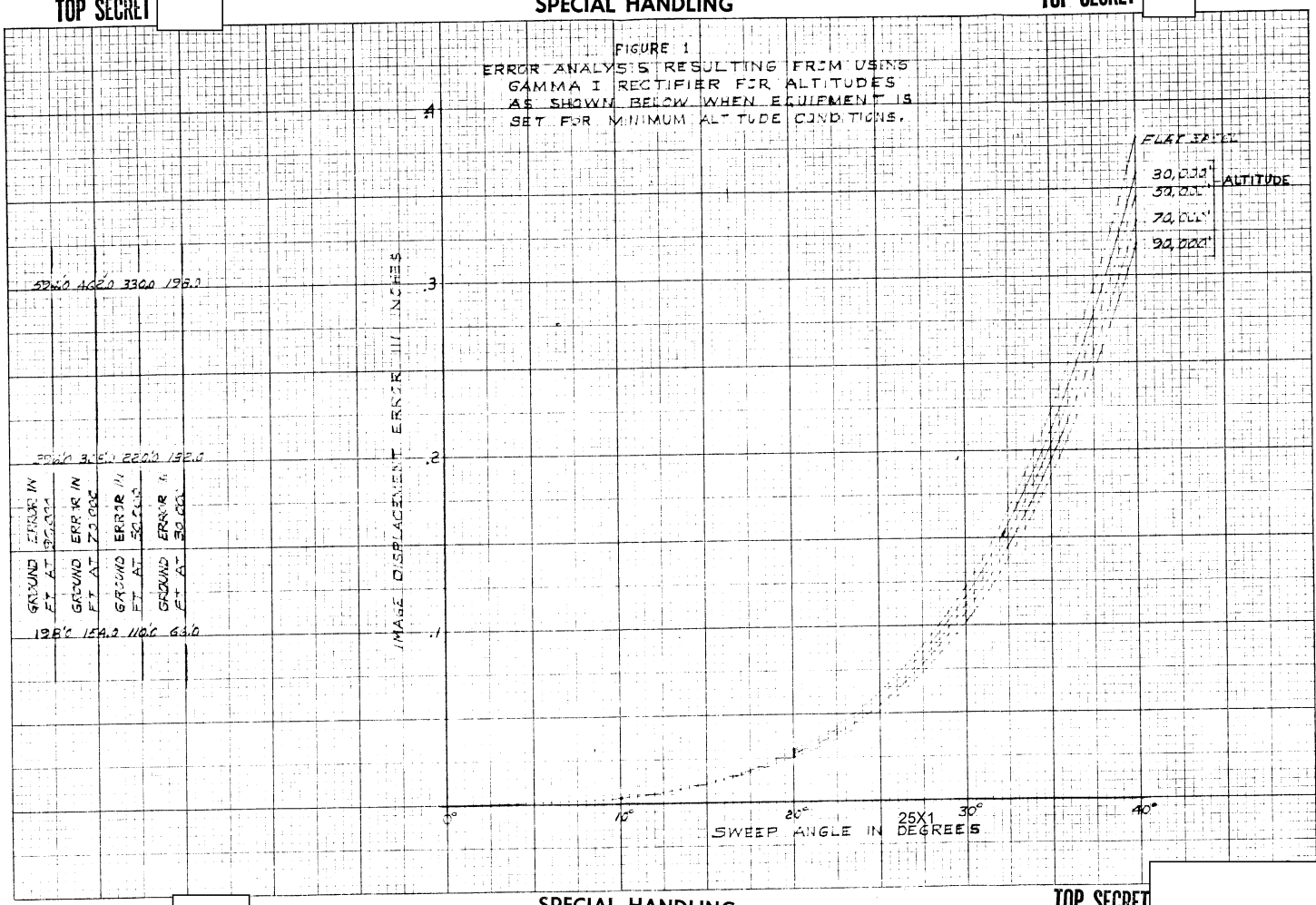
Refer to accompanying bar chart.

VI. Cost

The fixed price for the focus cam retrofit is [ ] per unit. For details please refer to the attached breakdown. 25X1

TOP SECRET

SPECIAL HANDLING



TOP SECRET

SPECIAL HANDLING

TOP SECRET

25X1

SCHEDULE

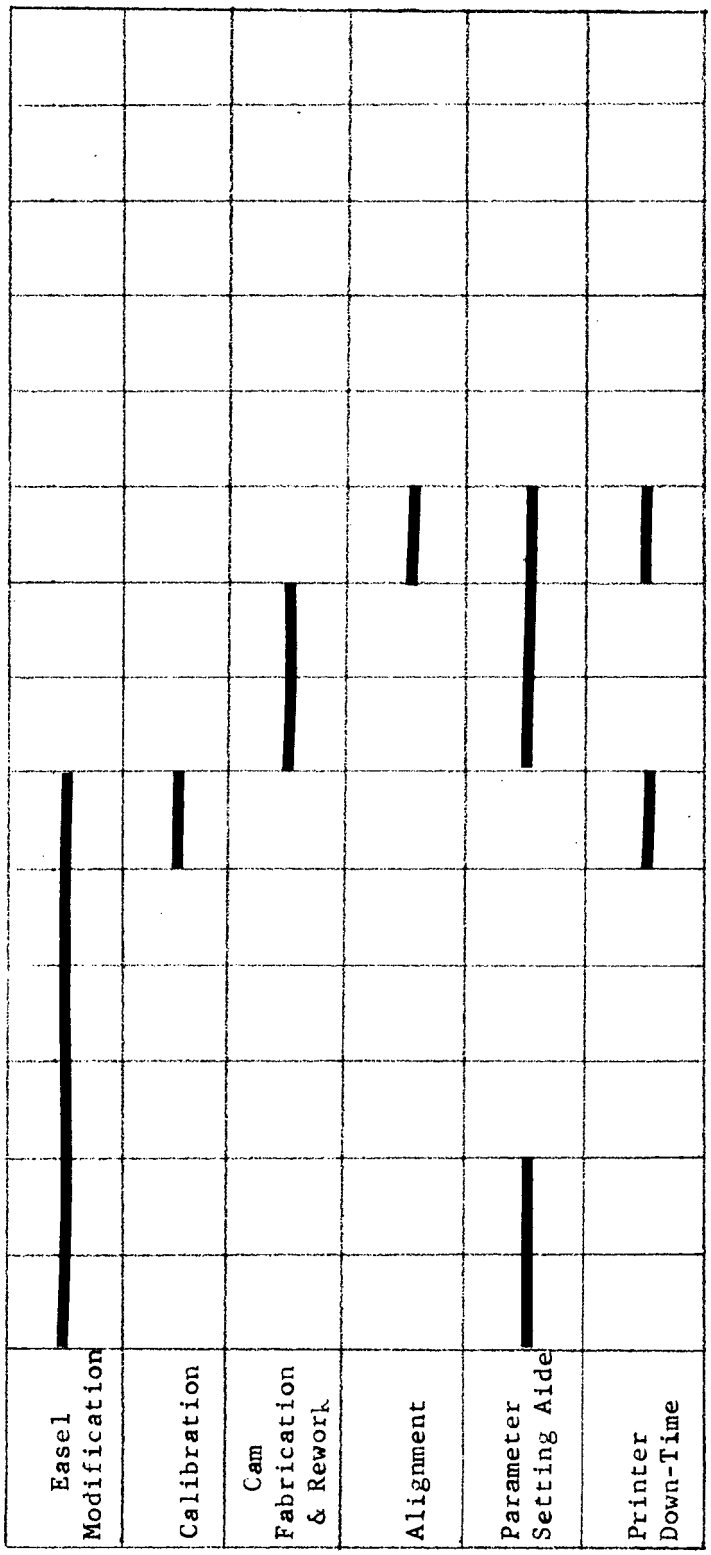


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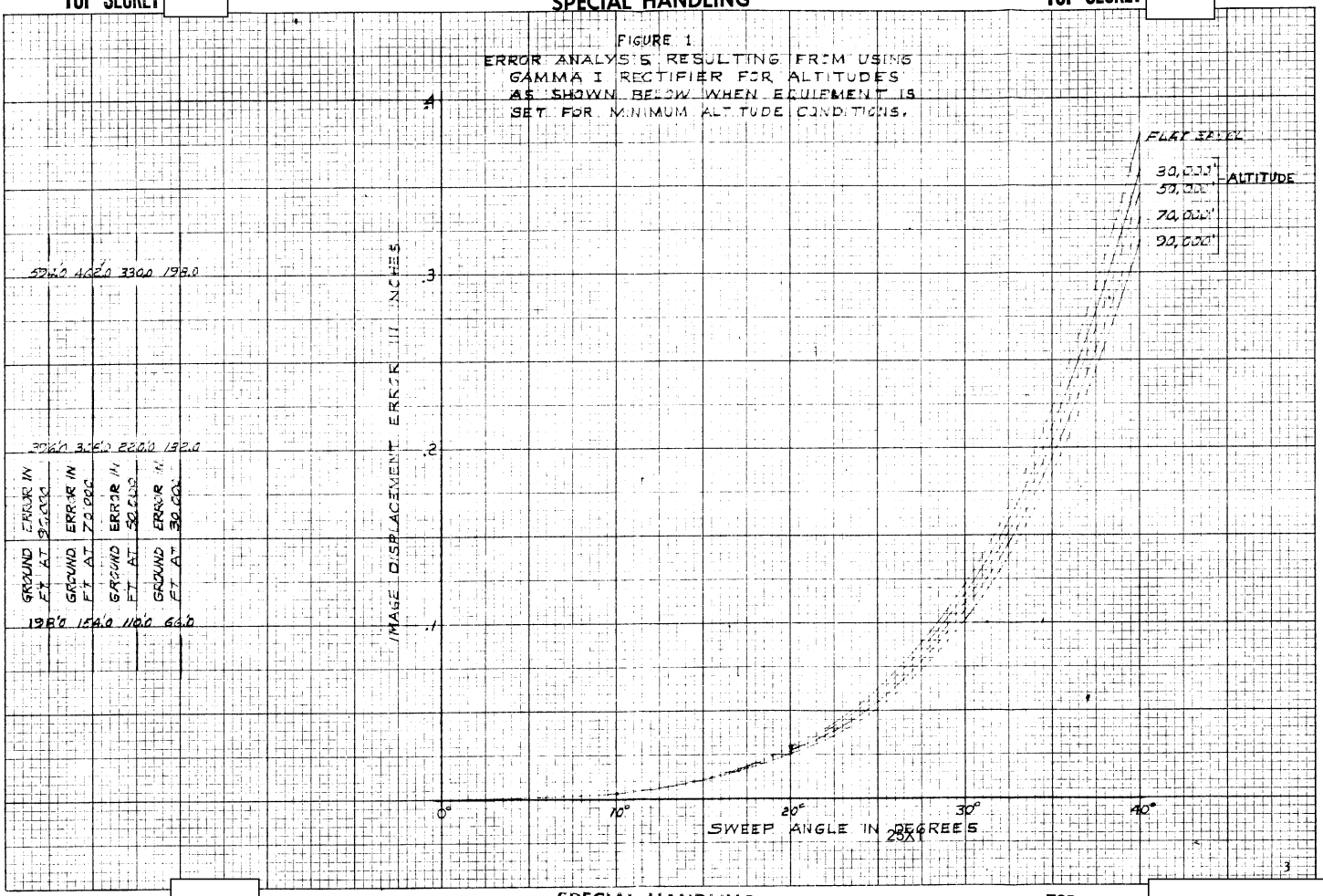
FIGURE 1
ERROR ANALYSIS RESULTING FROM USING GAMMA I RECTIFIER FOR ALTITUDES AS SHOWN BELOW WHEN EQUIPMENT IS SET FOR MINIMUM ALTITUDE CONDITIONS.



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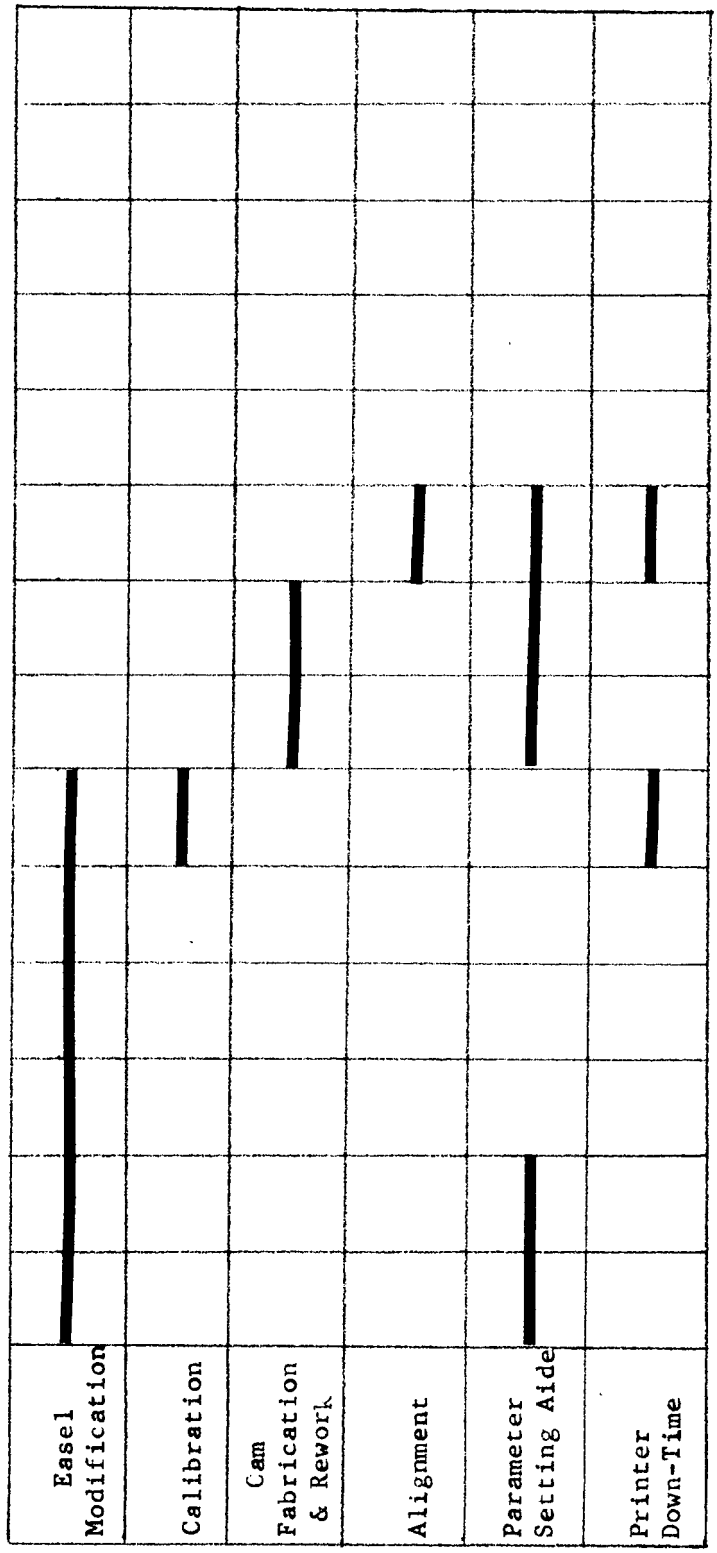

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